June 11, 1929. P. F. KRAEFT 1,717,229

COMBINATION WASHER AND STERILIZER

Filed Jan. 7, 1927 2 Sheets-Sheet 1

Fig. 1.

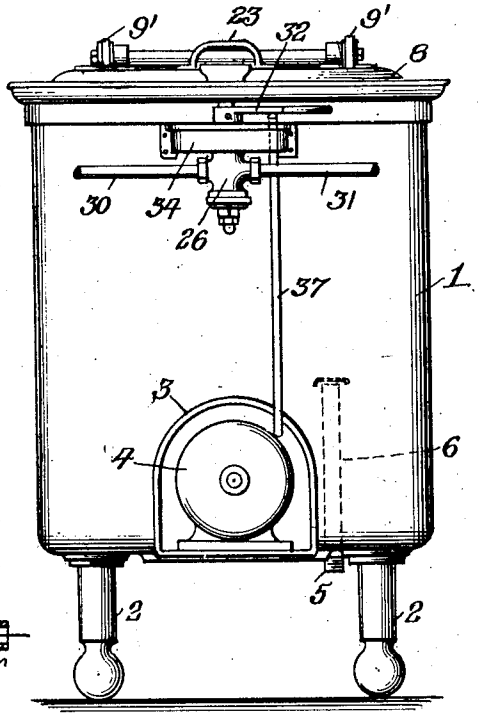


Fig. 3.

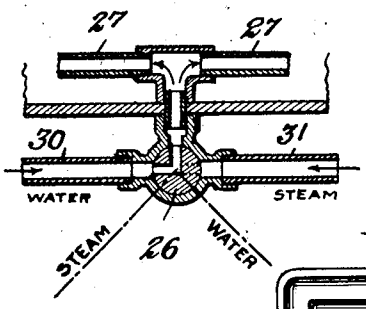
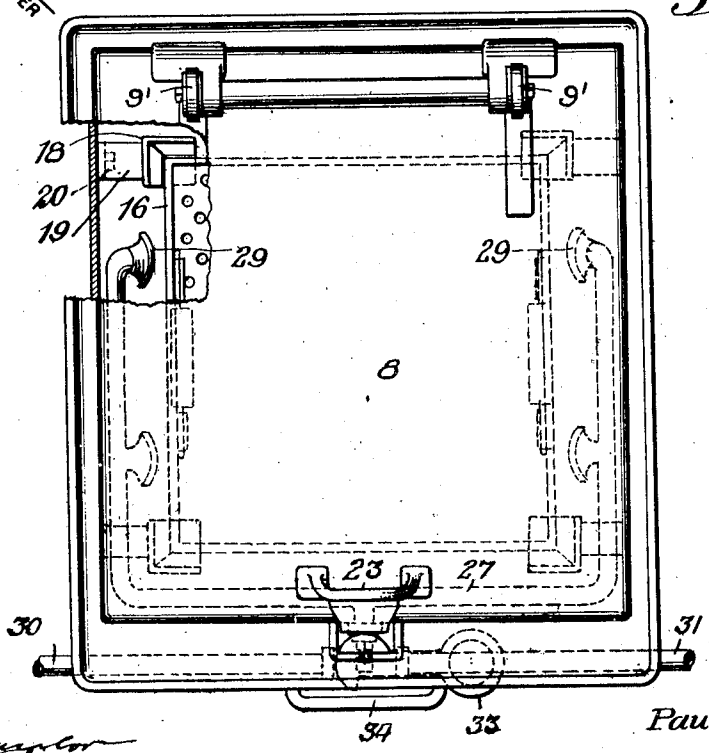


Fig. 2.



WITNESSES

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Fig. 4.

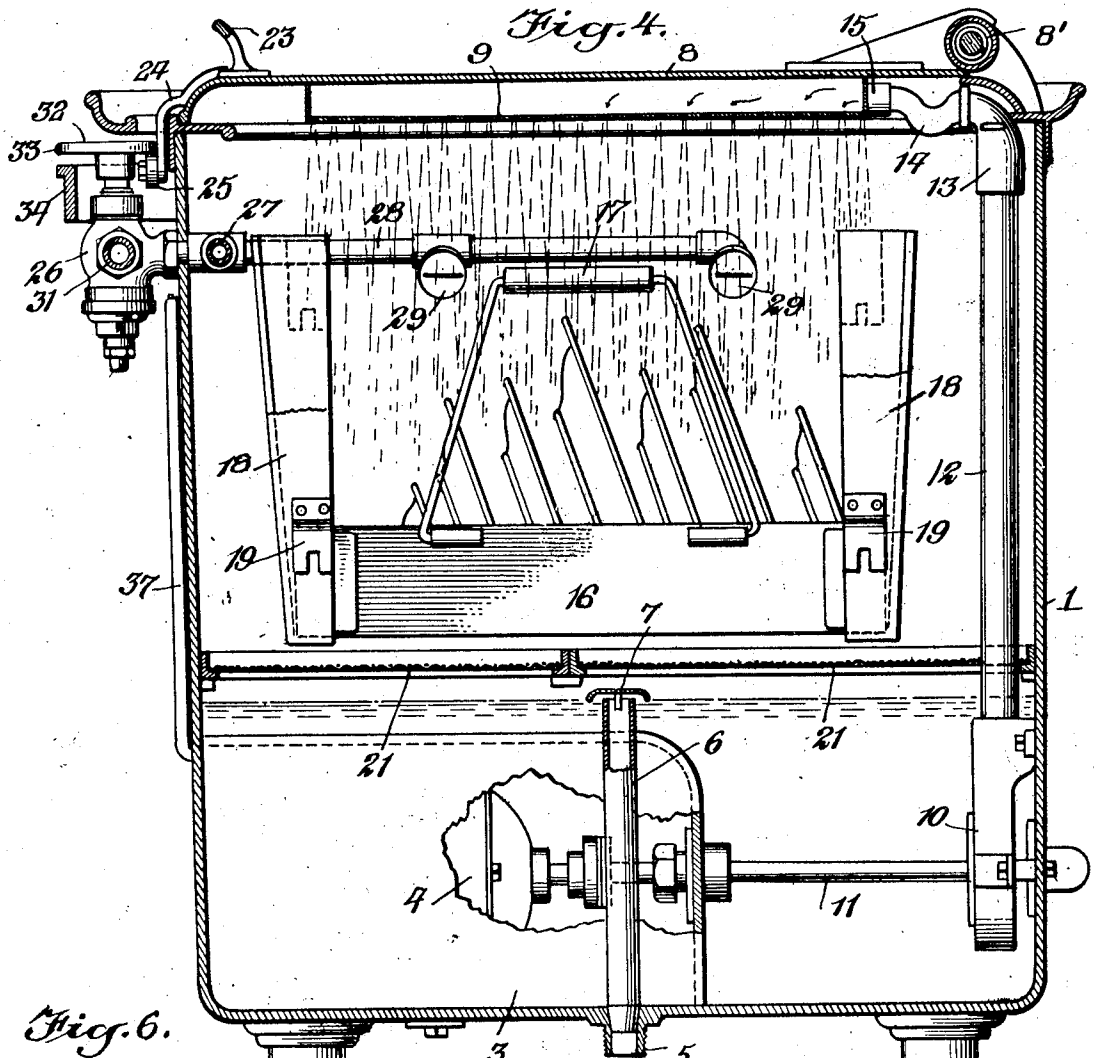


Fig. 6.

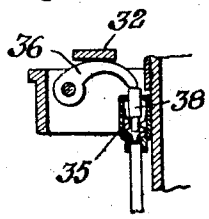
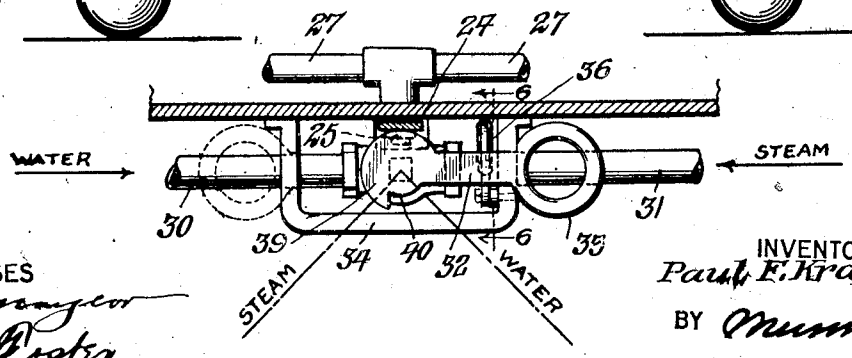


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

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COMBINATION WASHER AND STERILIZER.

Application filed January 7, 1927. Serial No. 159,667.

This invention relates to an improved combination washer and sterilizer.

An object of the invention is to provide in a single apparatus improved means for successively washing, rinsing and sterilizing the dishes or other articles placed therein.

It is advisable that dishes be sterilized before using, particularly in restaurants and public eating places, and in some States laws have been passed which require a sterilizing of the dishes before they are again used.

This necessitates the carrying out of separate operations, namely, first washing the dishes, then removing the dishes from the washer and placing them in a sterilizer, and this is not only a time-consuming operation but it is a troublesome one and requires an additional handling of the dishes, which I completely dispense with by the employment of my improved apparatus.

A further object of the invention, therefore, is to provide an apparatus which performs these separate and distinct functions, and I employ a single lever or other analogous member, manually operated, to initiate and carry out the operation of washing, then rinsing, then sterilizing, and during all of these operations the said lever, or other manually moved element, functions to hold the cover of the machine in closed position so that the cover cannot be raised or accidentally moved while any of these operations are being performed, but is capable of opening when the lever or other manually movable element is moved to a position to stop or prevent the carrying out of any of the operations above described.

A further object is to provide a machine of this character which has many advantageous features of construction and which performs its functions efficiently, which occupies but relatively small space, and which gives improved results in an economical manner.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, which will be more fully hereinafter described and pointed out in the claim.

In the accompanying drawings—

Figure 1 is a view in front elevation of my improved machine;

Figure 2 is a top plan view, partly broken away;

Figure 3 is a sectional detail view showing the inlet valve and its adjacent parts;

Figure 4 is a view in vertical longitudinal section of the machine;

Figure 5 is a sectional plan view which shows the lever controlling the inlet valve and other parts adjacent thereto and with which the lever co-operates;

Figure 6 is a fragmentary view in section on the line 6—6 of Figure 5.

1 represents a tank or receptacle which may be supported upon feet 2 and which is provided in the lower portion thereof with a casing 3 in which an electric motor 4 is located. 5 represents a drain outlet which may be connected directly to a sewer or to any other point of discharge, and 6 is an overflow tube removably fitting into the drain outlet 5 normally positioned vertically so as to regulate or control the level of water in the casing 1, and this removable overflow pipe 6 is provided with a cap 7 which prevents any water from falling directly into the overflow pipe 6.

8 represents a cover located at the top of the machine and connected to the main portion of the machine by spring hinges 8′ which tend to raise or open the cover and support the same in open position. On the under face of this cover 8 I secure a perforated distributor box 9, the perforations being in the bottom of the box so as to allow the water which is directed into the box to be sprayed downwardly therefrom.

10 represents a pump which is located in the water compartment at the bottom of the casing 1 and is operated by a shaft 11 driven by the motor 4. The outlet of this pump 10 has a vertical pipe 12 connected therewith extending upwardly and provided with an elbow 13 at its upper end which is connected by a flexible pipe 14 with the inlet 15 of the distributor box 9.

16 represents a dish or other article supporting tray, which is illustrated as of general rectangular form and provided with handles or bails 17 at opposite sides to facilitate the manual movement thereof. This tray is adapted to be supported in hangers 18, preferably four in number, which have bifurcated brackets 19 thereon adapted to straddle headed bolts or pins 20 fixed to the walls of the casing 1 so that these hangers may be removed or replaced as may be desired.

The bottoms of the hangers are closed so that when the tray 16 is inserted therein the hangers will support the same, and the inner

faces of these hangers are preferably inclined toward each other from their upper to their lower ends so as to facilitate the entrance of the tray into the hangers and guide the tray into operative position at the lower ends of the hangers, as clearly illustrated in Figure 4.

Screens 21 are located above the water level in casing 1 and below the lower ends of the hangers 18, so that the water which passes over the dishes or other articles 22 will flow through the perforated bottom of the tray 16 and through the screens, which latter will prevent return of any large particles into the water circulation.

It is of course to be understood that these screens 21 are constructed and supported so that they may be removed as occasion may require, although I have not attempted to illustrate in detail the exact construction and mounting of these screens, which may of course be varied to suit the trade.

The cover 8 above referred to is made with a handle 23 which may be utilized to draw the cover to closed position, it being understood, of course, that the spring hinges 8′ are sufficiently strong to open or partially open the cover, and said cover at its forward free end has a depending arm 24 thereon supporting a roller 25 for a purpose which will hereinafter appear.

Referring more particularly to Figures 3, 5 and 6 of the drawings, it will be noted that I employ a single two-way valve 26 located outside of the casing and coupled to a pair of laterally projecting pipes 27 in the casing, these pipes 27 coupled to and supporting a pair of discharge pipes 28, said pipes 28 having slitted or other forms of discharge nozzles 29 positioned at an angle and located in a plane above the articles supported in the casing 1 so as to direct the water or steam downwardly upon the articles to be washed or sterilized.

The valve 26 (the reference numeral being utilized to indicate both the valve per se and the casing thereof) communicates with a water supply pipe 30 and a steam supply pipe 31 and is adapted to be moved into open communication between either of said pipes and the pipes 27 and 28.

32 represents a manually operated lever which is directly connected to the valve 26 and which may have a ring 33 at one end thereof, as clearly shown in Figure 5. The valve and adjacent parts are preferably partially housed within a U-bracket 34 on the casing 1, and this U-bracket supports an electric circuit closer 35 with a pivoted cam 36 above the same, which is in the path of movement of the lever 32 and is adapted to be moved by said lever to close the electric circuit.

I have not attempted to illustrate any particular circuit but have merely illustrated a circuit closer 35 with a pipe 37 adapted to enclose wires or other conductors which electrically connect the circuit closer with the electric motor 4.

The circuit closer 35 may be of various types but is preferably of a standard type in which the member 38 is normally elevated and when in this position the circuit is open and this member 38 is depressed with the cam 36 to close the same, and when pressure on the cam is released the member 38 will rise and open the same.

The improved feature is that the circuit is closed by the lever 32 when this lever is swung to the position shown in Figure 5, and when the lever is moved to another position the circuit will be open, and I do not limit myself to the specific details of construction for carrying out this operation.

The lever 32 has a curved or concentric disk 39 which constitutes an integral end of the lever, and this circular disk is fixed concentrically to the valve 26. A portion of this disk is recessed or cut away, as shown at 40, for a purpose which will hereinafter appear.

The operation is as follows:

In the drawings I illustrate a machine carrying out the washing operation and the parts are illustrated for this operation. It will be noted that the lever 32, shown in Figure 5, is swung to the extreme right so that it operates to close the circuit to the motor, the motor driving the pump 10 forces the water upwardly into the distributor box 9, and from which it falls in a spray over the dishes, and this operation is a continuous one as long as desired. When the lever 32 is in this position the valve 26 is turned to a position shutting off or closing both the water and steam inlet pipes 30 and 31, respectively, and hence, previous to this operation, it is necessary first to move the lever to the position to open communication between the water pipe 30 and the pipes 27 and 28, to discharge the proper amount of water into the machine, but as soon as the desired level of water is reached the valve is swung to the position shown in Figure 6. The overflow pipe 6 regulates the level of water in the machine and whenever it is desired to drain the machine this overflow pipe is lifted out of the drain outlet 5 and the water can flow to any point of discharge desired.

After the washing operation is completed, the operator swings the lever 32 to a position to allow the water in the pipe 30 to flow through the pipes 27 and 28 and nozzles 29 to rinse the dishes or other articles. This position of the valve is shown in Figure 3. When the lever 32 is moved to this rinsing position it is moved away from cam 36 and the electric circuit is opened so as to stop the motor 4.

When the rinsing operation is completed, the lever is swung to a position to close the

water inlet pipe and open communication between the steam inlet pipe 31 and the pipes 27, 28. This hot steam will flow through the pipes 27 and 28 and nozzles 29 and subject the dishes or other articles to a complete sterilization at any desired temperature and as long as may be deemed necessary or in compliance with the law in different communities.

When the sterilizing operation is completed, the lever 32 is swung completely to the left in Figure 5, assuming the dotted line position shown therein, and when in this position the recess 40 in disk 39 of lever 32 will register with the roller 25 and the cover will swing to open position.

It is of course to be understood that when the lever is in this position to allow the cover to open, the valve is in position to shut off both water and steam from the machine. The dishes or other articles or the tray containing them can be removed and the operation is repeated as above described.

I would call particular attention to the fact that I not only employ in a single machine means to permit dishes or other articles to be washed, rinsed or sterilized without moving them, but I also provide a single lever or other manually operated controlling member which functions to control all these operations and in addition acts as a lock for the cover so that the cover can be opened only when none of these operations are being carried out.

While I have illustrated what I believe to be a preferred embodiment of my invention, it is obvious that various changes and alterations might be made in the general form of the parts described without departing from my invention and hence I do not limit myself to the precise details set forth but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claim.

I claim:

A washing and sterilizing machine, comprising a casing, water and steam pipes communicating with the casing, a single valve controlling the passage of steam and water to the casing, a lever connected to said valve, a cover on the casing, a device on the cover, a disk connected to the lever having a recess therein, said device on the cover engaging under the disk to hold the cover closed when the lever is positioned to hold the valve open, and said disk being moved by the lever to register the recess therein with the device and permit the cover to be opened only when the valve is in closed position.

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